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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/635,779	08/06/2003	Paul R. Margiott	C-2952	1720
7590 12/16/2004			EXAMINER	
Malcolm J. Chisholm, Jr. P.O. Box 278 220 Main Street Lee, MA 01238			HODGE, ROBERT W	
			ART UNIT	PAPER NUMBER
			1746	

DATE MAILED: 12/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/635,779

Applicant(s)

MARGIOTT ET AL.

Examiner

Robert Hodge

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See

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 17-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5,7,9 and 13-16 is/are rejected.
- 7) ☒ Claim(s) 6,8 and 10-12 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/6/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-16, drawn to "A hydrogen passivation shut down system", classified in class 429, subclass 39.
 - II. Claims 17-27, drawn to "A method of shutting down a fuel cell power plant", classified in class 429, subclass 13.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case invention II to "a method of shutting down a fuel cell power plant" can also be applied to an electrolyzer system or a reformer system. And does not have to just be applied to invention I to "a hydrogen passivation shut down system".
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Malcolm Chisholm on 12/7/04 a provisional election was made with traverse to prosecute the invention of I, claims 1-16. Affirmation of this election must be made by applicant in replying to this Office action. Claims 17-27

withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Specification

6. The disclosure is objected to because of the following informalities: On page 10 line 21 of the disclosure the word --to-- should be inserted between the words "tend" and "flow".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear how "a sensor circuit" can be "secured in electrical communication with the anode catalyst and the cathode catalyst". Since no structure is set forth in the recitation of the claim.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 1-2, 7, 9, 13 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Balliet et al. U.S. pre-grant publication No. 2004/0126628, hereinafter referred to as Balliet et al.

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

11. Balliet et al. teaches a fuel cell system (abstract) having an anode (paragraph [0018]) and cathode catalyst (paragraph [0020]), with an electrolyte disposed between them (paragraph [0017]), an anode and cathode flow path (paragraph [0021]), a hydrogen inlet valve (paragraph [0023]), an oxidant inlet valve (paragraph [0022]), a hydrogen transfer means between the anode and cathode flow paths (paragraph [0024]) and a hydrogen reservoir means secured in fluid communication with the anode

flow path (paragraph [0022]). The examiner notes that the hydrogen fuel source disclosed by Balliet et al. is in fluid communication means with the anode flow path as shown in figure 1 indicated by 40 and 54. Balliet et al. also teaches the use of a hydrogen transfer valve (paragraph [0024]), a proton exchange membrane (paragraph [0017]), an anode recycle line with an anode recycle blower (paragraph [0025]), and an auxiliary load connected to an external circuit (paragraph [0026]).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being obvious over Balliet et al. in view of Snow et al. U.S. Patent No. 6,589,312 hereinafter referred to as Snow et al.

14. Balliet et al. discloses all of the limitations in the above 102(e) rejection.

15. Balliet et al. does not disclose the use of a hydrogen storage media.

16. Snow et al. teaches the use of a hydrogen storage hydride (column 3, lines 62-64).

17. It would have been obvious to include in Balliet et al. the use of a hydrogen storage media within the hydrogen vessel or reservoir in order to more safely store

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hydrogen and reduce the amount of space required for hydrogen storage versus compressed hydrogen.

18. Claim 14 is rejected under 35 U.S.C. 103(a) as being obvious over Balliet et al. in view of Condit et al. U.S. Patent No. 6,635,370 hereinafter referred to as Condit et al.

19. Balliet et al. discloses all of the limitations in the above 102(e) rejection.

20. Balliet et al. does not disclose the use of a hydrogen sensor means secured in communication with the fuel cell.

21. Condit et al. teaches a hydrogen sensor located within the anode flow field (column 8, lines 34-35)

22. It would have been obvious to include in Balliet et al. the use of a hydrogen sensor within the anode flow path in order to measure the concentration of hydrogen within said anode flow path.

Allowable Subject Matter

23. Claims 6, 8, and 10-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

24. The prior art made of record does not disclose the use of a hydrogen storage media being secured within a porous anode substrate layer, nor does it disclose the use of a hydrogen transfer electrochemical pump as a hydrogen transfer means between the anode and cathode flow paths. The prior art made of record also does not disclose the use of a cathode bypass valve in conjunction with a cathode bypass blower both being a part of a cathode bypass line. The prior art made of record further does not

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disclose the use of anode and cathode exhaust valves that are located below the fuel cell system with respect to the direction of gravity, nor does it disclose that the valves can be vacuum release valves.

25. Claim 15 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

26. The prior art made of record does not disclose that the hydrogen sensor means comprises of a sensor circuit, a power source, a voltage measuring device and a sensor circuit switch that is then secured to the fuel cell.

Conclusion

27. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. U.S. Patent No. 3,748,180 to Clausi et al., teaches a fuel cell system having a hydrogen reservoir as part of the fuel cell stack
- b. U.S. Patent No. 6,103,410 to Fuller et al., teaches a fuel cell system where hydrogen is introduced to the cathode chamber from a secondary source of hydrogen
- c. U.S. Patent No. 6,399,231 to Danahue et al., teaches a fuel cell system with a hydrogen transfer means to supply hydrogen to the cathode
- d. U.S. Patent No. 6,299,996 to White et al., teaches a fuel cell system with an oxidant transfer means to supply oxidant to the anode

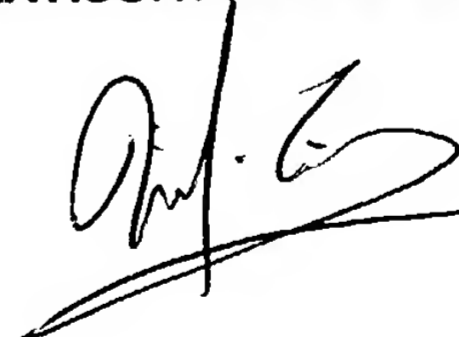
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Hodge whose telephone number is (571) 272-2097. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on (571) 272-1414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RWH 12-10-04

MICHAEL BARR
SUPERVISORY PATENT EXAMINER

A handwritten signature in black ink, appearing to read 'Michael Barr', is written over a horizontal line.